

First Quarter July - Sept

DRI Manager

DRI Project Manager

Record Modify Date 10/21/2004

T. Hoover

G. Gauthier 916-324-2552

Record ID	Record Date	Project Status	Funding Program	Funding Source	Project ID			
0181		Active	2040010	100% Federal	SPR	3	043	L
Contract No.	Task Order	Source Dist	Source Unit	Expend. Auth.	Subjob	Special Des.	Document No.	
In-House		65	338	680821				

Project Title

Development of a New Guardrail End Treatment, Phase II

Describe this quarter's accomplishments.

Concept "L" was developed using LSDYNA finite element models. This concept features hinged beams between rigid diaphragms spaced 4 feet, that collapse upon an end-on impact. The beams are hinged at each diaphragm connection and in the middle between the diaphragms. There are two levels of beams on either side of the diaphragms. The nose has a rubber marine fender cylinder. The beams are bent at the center hinges slightly to initiate collapse. This concept is proving to be low cost in materials, since it consists primarily of the steel beams and diaphragms. It requires quite a bit of energy to get the beams to collapse and fold, in fact it is proving to be too stiff. Efforts have been made to "soften" the

Describe next quarter's task / deliverables & due dates.

Work will continue on demonstrating feasibility of this concept. A decision will be made by December whether to proceed with this concept, or try a new one.

Please provide actual first quarter expenditures amounts beginning July 1 thru September 30 for the 2003 / 2004 Fiscal Year. **(Do not use \$ sign or commas when entering figures)**

<u>Contract \$</u>	<u>Equipment \$</u>	<u>Material \$</u>	<u>Travel \$</u>	<u>PY \$</u>
\$0.00	\$0.00	\$0.00	\$0.00	\$9,610.00
\$0.00	\$0.00	\$0.00	\$0.00	\$60,010.00

Current 2003 / 2004 Fiscal Year Programmed Funding Levels

What percentage of your project is completed?

20 %

Are your current spending levels within the programmed project funding? If no please explain below.

YES

Are project accomplishments within the time schedule? If no please explain below.

NO

Are project accomplishments within the scope? If no please explain below.

YES

Do programmed funding levels need adjustment (increase / decrease) to meet programmed budget funding levels for this fiscal year?

YES

Future fiscal years?

YES

If the answer is yes to funding level increases or decrease include detailed funding information below.

It was expected to have a feasible concept established at the end of this quarter, but more work needs to be done. The contract programmed amount should only be \$25,000 for FY04. The other levels are correct. The total should be \$125,000 all federal, no state.

The contract programmed amount should only be \$200,000 for FY05. The other levels are correct. The total should be

Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submittal Date (mm/dd/yyyy)

01/21/2004

First Quarter Submitted by:

Gary Gauthier

Phone:

324-2552

NO

Second Quarter Oct - Dec

DRI Manager

DRI Project Manager

Record Modify Date 10/21/2004

T. Hoover

G. Gauthier 916-324-2552

Record ID	Record Date	Project Status	Funding Program	Funding Source	Project ID				
0181		Active	2040010	100% Federal	SPR		3	043	L
Contract No.	Task Order	Source Dist	Source Unit	Expend. Auth.	Subjob	Special Des.	Document No.		
In-House		65	338	680821					

Project Title

Development of a New Guardrail End Treatment, Phase II

Describe this quarter's accomplishments.

Concept L proved to be too stiff, although it will not be thrown out. A request from manufacturers for spring cost and availability was made in late December.

Describe next quarter's task / deliverables & due dates.

Pending information on the springs, another concept will be explored, while keeping concept L on the shelf.

Please provide actual second quarter expenditures amounts beginning October 1 thru December 31 for the 2003 / 2004 Fiscal Year. **(Do not use \$ sign or commas when entering figures)**

<u>Contract \$</u>	<u>Equipment \$</u>	<u>Material \$</u>	<u>Travel \$</u>	<u>PY \$</u>
\$0.00	\$0.00	\$0.00	\$0.00	\$8,458.00
\$0.00	\$0.00	\$0.00	\$0.00	\$60,010.00
Current 2003 / 2004 Fiscal Year Programmed Funding Levels				

What percentage of your project is completed?

20 %

Are your current spending levels within the programmed project funding? If no please explain below.

YES

Are project accomplishments within the time schedule? If no please explain below.

NO

Are project accomplishments within the scope? If no please explain below.

YES

Do programmed funding levels need adjustment (increase / decrease) to meet programmed budget funding levels for this fiscal year?

NO

Future fiscal years?

NO

If the answer is yes to funding level increases or decrease include detailed funding information below.

Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submission Date (mm/dd/yyyy)

03/04/2004

Second Quarter Submitted by:

Gary Gauthier

Phone:

324-2552

NO

Third Quarter Jan - Mar

DRI Manager

DRI Project Manager

Record Modify Date 10/21/2004

T. Hoover		G. Gauthier 916-324-2552						
Record ID	Record Date	Project Status	Funding Program	Funding Source	Project ID			
0181		Active	2040010	100% Federal	SPR		3	043 L
Contract No.	Task Order	Source Dist	Source Unit	Expend. Auth.	Subjob	Special Des.	Document No.	
In-House		65	338	680821				

Project Title

Development of a New Guardrail End Treatment, Phase II

Describe this quarter's accomplishments.

Never received any information from the spring manufacturers. Decided to abandon concept L. Concept M was started. This featured buckling rubber fenders. The fenders were not stiff enough to redirect lateral impacts. Concept N with foam modules for end-on impacts and more rigid fenders was started.

Describe next quarter's task / deliverables & due dates.

Determine feasibility of Concept N.

Please provide actual third quarter expenditures amounts beginning January 1 thru March 31 for the 2003 / 2004 Fiscal Year. **(Do not use \$ sign or commas when entering figures)**

<u>Contract \$</u>	<u>Equipment \$</u>	<u>Material \$</u>	<u>Travel \$</u>	<u>PY \$</u>
				\$9,745.00
\$0.00	\$0.00	\$0.00	\$0.00	\$60,010.00
Current 2003 / 2004 Fiscal Year Programmed Funding Levels				

What percentage of your project is completed?

20 %

Are your current spending levels within the programmed project funding? If no please explain below.

YES

Are project accomplishments within the time schedule? If no please explain below.

NO

Are project accomplishments within the scope? If no please explain below.

YES

Do programmed funding levels need adjustment (increase / decrease) to meet programmed budget funding levels for this fiscal year?

NO

Future fiscal years?

YES

If the answer is yes to funding level increases or decrease include detailed funding information below.

An increase in funding will probably be needed in FY06.

Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submission Date (mm/dd/yyyy)

06/10/2004

Third Quarter Submitted by:

Gary Gauthier

Phone:

324-2552

Fourth Quarter Apr - Jun

DRI Manager

DRI Project Manager

Record Modify Date 10/21/2004

Record ID		Record Date	Project Status	Funding Program	Funding Source	Project ID			
0181			Active	2040010	100% Federal	SPR		3	043 L

Contract No.	Task Order	Source Dist	Source Unit	Expend. Auth.	Subjob	Special Des.	Document No.
In-House		65	338	680821			

Project Title

Development of a New Guardrail End Treatment, Phase II

Describe this quarter's accomplishments.

Concept N feasibility study ongoing. Looks promising.

Describe next quarter's task / deliverables & due dates.

Continue concept N feasibility using computer simulations.

Please provide actual fourth quarter expenditures amounts beginning April 1 thru June 30 for the 2003 / 2004 Fiscal Year. **(Do not use \$ sign or commas when entering figures)**

<u>Contract \$</u>	<u>Equipment \$</u>	<u>Material \$</u>	<u>Travel \$</u>	<u>PY \$</u>
\$0.00	\$0.00	\$0.00	\$0.00	\$7,123.00
\$0.00	\$0.00	\$0.00	\$0.00	\$60,010.00

Current 2003 / 2004 Fiscal Year Programmed Funding Levels

What percentage of your project is completed?	Are your current spending levels within the programmed project funding? If no please explain below.	Are project accomplishments within the time schedule? If no please explain below.	Are project accomplishments within the scope? If no please explain below.
20 %	NO	NO	YES

Do programmed funding levels need adjustment (increase / decrease) to meet programmed budget funding levels for this fiscal year?

Future fiscal years?

NO

YES

If the answer is yes to funding level increases or decrease include detailed funding information below.

As requested several times before to no avail, FY05 should be \$25K contract, \$40K equip/matls and \$60K PY's
FY06 should be \$200K contract, \$190K equip/matls and \$140K PY's

Have you placed additional information on the page of this report under Project / Contract Manager Comments?

Submittal Date (mm/dd/yyyy)

Fourth Quarter Submitted by:

Phone:

NO

10/10/2004

Gary Gauthier

324-2552

Record ID	Record Date	Project Status	Funding Program	Funding Source	Project ID		
0181		Active	2040010	100% Federal	SPR	3	043 L
Project Title							
Development of a New Guardrail End Treatment, Phase II							

<u>Program Project Contract Dollars</u>					<u>Program Project PYs</u>		
F Y	(excluding PY \$) Program \$	State \$	Federal \$	(excluding PY\$) Contract \$	F Y	PY\$\$	PYS
1988	40,000.00	0.00	40,000.00	10,000.00	1988	126,000.00	1.80
1999	0.00	0.00	0.00		1999	140,000.00	2.00
2000	150,000.00	0.00	150,000.00	120,000.00	2000	102,900.00	1.47
2001		0.00	0.00		2001		
2002		0.00	0.00		2002		
2003	0.00	0.00	0.00	0.00	2003		
2004	0.00	0.00	0.00	0.00	2004	60,010.00	0.71
2005	65,000.00	0.00	65,000.00	65,000.00	2005	140,003.50	1.65
2006	405,000.00	0.00	405,000.00	405,000.00	2006		
2007	0.00	0.00	0.00	0.00	2007		
2008	0.00	0.00	0.00	0.00	2008		
	\$660,000.00	\$0.00	\$660,000.00	\$600,000.00		\$568,913.50	7.623

<u>Program Project Equipment, Materials & Travel</u>			
F Y	Equipment \$	Material \$	Travel \$
1988	20,000.00	0.00	10,000.00
1999		0.00	
2000	25,000.00	0.00	5,000.00
2001			
2002			
2003			
2004	0.00	0.00	0.00
2005	0.00	0.00	0.00
2006			
2007			
2008			
	\$45,000.00	\$0.00	\$15,000.00

<u>Pooled Fund Projects</u>	
Lead State	California \$ Contribution Amount
CA	414,000.00
Fed Aid Auth Date	Fed Aid Prog Number
Total Combined Project \$ Amount	
614,000.00	

<u>Program Project Summary Totals</u>	
Summary for FYs 1998 - 2003 Includes Contract, Equipment, Materials, Travel, & PY\$ <div style="border: 1px solid black; padding: 2px; text-align: center;">\$1,228,913.50</div>	Summary for FYs 1998 - 2003 Includes Equipment, Materials, & Travel <div style="border: 1px solid black; padding: 2px; text-align: center;">\$60,000.00</div>

<u>Project Funding Share Percentage</u>	
FHWA & STATE Percentage Funding Share <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">FHWA Share 1.00</div> <div style="text-align: center;">STATE Share 0.00</div> </div>	

Problem Statement		DRI Manager		DRI Project Manager		Record Modify Date			
		T. Hoover		G. Gauthier 916-324-2552		10/21/2004			
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In-House		65	338	680821					

Project Title

Development of a New Guardrail End Treatment, Phase II

Project Description

Develop and test a non-proprietary end treatment for guardrail and median barriers that is self-restoring with little or no maintenance, exhibits little or no vehicle rebound and meets NCHRP Report 350 Test Level 3."

Project Objective

The objectives of this research project are to develop an end treatment that:

- 1) Complies with NCHRP Report 350. This device will be designed to pass all evaluation criteria for test level 3 (100 km/h), nongating terminals. A series of at least eight compliance crash tests will be conducted.
- 2) Is Nongating. This device will attenuate end-on impacts to a smooth, safe stop and redirect lateral impacts along the entire length of the device. Gating devices require a large run out area behind the device for a vehicle to slow down to a stop after breaking through. Many roadside locations do not have the required run out area available for a vehicle to safely traverse.
- 3) Can be installed parallel or flared from the roadway. This system will be designed to be either installed parallel or flared 1.2 m away from the roadway.
- 4) Restores itself after impact. The device developed will be self-restoring, and require little or no maintenance repair after a design collision.
- 5) Costs less than \$20,000."

Problem Statement

Existing self-restoring crash cushions are proprietary products sold by one company and are very expensive, costing over \$30,000. They also require some maintenance and/or repair after impacts, and may cause the vehicle to rebound excessively after attenuation. A generic device that costs significantly less, requires very little or no maintenance after impact, and results in no vehicle rebound needs to be developed.

<u>CMgr Comments</u>		DRI Manager		DRI Project Manager		Record Modify Date				
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Contract / Project Manager Comments